I claim:

1. An *in vivo* Raman endoscope comprising:

a probing fiber bundle having a distal end and a proximal end and comprising at least one illumination fiber and a plurality of collection fibers,

a short-pass filter on the distal end of said at least one illumination fiber,

a long-pass filter on the distal end of said plurality of collection fibers,

a filter adapter on the proximal end of said fiber bundle, comprising a band-pass filter in optical communication with said illumination fiber and a notch filter in optical communication with said plurality of collection fibers, and

a round-to-parabolic linear array fiber bundle in optical communication with said plurality of collection fibers through said notch filter.

2. The system of claim 1, wherein said short-pass filter comprises a coating on the distal end of said at least one illumination fiber.

3. The system of claim 2, wherein said short-pass filter has a cut-off wavelength of about 825 nm.

4. The system of claim 1, wherein said long-pass filter comprises a coating on the distal end of said plurality of collection fibers.

5. The system of claim 4, wherein said long-pass filter has a cut-off wavelength of about 825 nm.

6. The system of claim 4, wherein said short-pass filter comprises a coating on the distal end of said at least one illumination fiber.

7. The system of claim 6, wherein said short-pass filter has a cut-off wavelength of about 825 nm and said long-pass filter has a cut-off wavelength of about 825 nm.

8. The system of claim 1, wherein said band-pass filter transmits in a range around 785 nm.

9. The system of claim 8, wherein said range is plus-or-minus 2.5 nm.

10. The system of claim 1, wherein said notch filter has an OD greater than 6.0 at 785 nm.

11. The system of claim 1, further comprising means for delivering illumination light to said filter adapter and wherein said filter adapter further comprises a collimating lens between said means for delivering and said band-pass filter.

12. The system of claim 11, wherein said means for delivering comprises a laser.

13. The system of claim 11, further comprising a focusing lens between said band-pass filter and said illumination fiber.

14. The system of claim 1, wherein said filter adapter further comprises a collimating lens between said plurality of collection fibers and said notch filter.

15. The system of claim 14, further comprising a focusing lens between said notch filter and said round-to-parabolic linear array fiber bundle.

16. The system of claim 1, further comprising means for delivering illumination light to said filter adapter and said filter adapter further comprises a collimating lens between said means for delivering and said band-pass filter, a focusing lens between said band-pass filter and said illumination fiber, a collimating lens between said plurality of collection fibers and said notch filter, and a focusing lens between said notch filter and said round-to-parabolic linear array fiber bundle.

17. The system of claim 1, further comprising a quartz window at the distal end of said fiber bundle.

18. The system of claim 11, wherein said illumination light is chosen at a wavelength to induce Raman scattering.

19. The system of claim 18, wherein said illumination light is monochromatic.

20. The system of claim 19, wherein said light source is a laser.

21. The system of claim 20, wherein said laser is a diode laser.

22. The system of claim 21, wherein said illumination light is about 785 nm.

23. An *in vivo* Raman endoscopic probe system, comprising:

a probe comprising a probing fiber bundle having a distal end and a proximal end and comprising at least one illumination fiber and a plurality of collection fibers,

a short-pass filter on the distal end of said at least one illumination fiber,

a long-pass filter on the distal end of said plurality of collection fibers,

a filter adapter on the proximal end of said fiber bundle, comprising a band-pass filter in optical communication with said illumination fiber and a notch filter in optical communication with said plurality of collection fibers,

a round-to-parabolic linear array fiber bundle in optical communication with said

plurality of collection fibers through said notch filter,

a light source providing illumination light to said illumination fiber through said band-pass filter,

a spectrometer in optical communication with said plurality of collection fibers through said notch filter.

24. The system of claim 23, wherein said short-pass filter comprises a coating on the distal end of said at least one illumination fiber.

25. The system of claim 24, wherein said short-pass filter has a cut-off wavelength of about 825 nm.

26. The system of claim 23, wherein said long-pass filter comprises a coating on the distal end of said plurality of collection fibers.

27. The system of claim 26, wherein said long-pass filter has a cut-off wavelength of about 825 nm.

28. The system of claim 26, wherein said short-pass filter comprises a coating on the distal end of said at least one illumination fiber.

29. The system of claim 28, wherein said short-pass filter has a cut-off wavelength of about 825 nm and said long-pass filter has a cut-off wavelength of about 825 nm.

30. The system of claim 23, wherein said band-pass filter transmits in a range around 785 nm.

31. The system of claim 30, wherein said range is plus-or-minus 2.5 nm.

32. The system of claim 23, wherein said notch filter has an OD greater than 6.0 at 785 nm.

33. The system of claim 23, further comprising means for delivering illumination light to said filter adapter and wherein said filter adapter further comprises a collimating lens between said means for delivering and said band-pass filter.

34. The system of claim 33, wherein said means for delivering comprises a laser.

35. The system of claim 33, further comprising a focusing lens between said band-pass filter and said illumination fiber.

36. The system of claim 23, wherein said filter adapter further comprises a collimating lens between said plurality of collection fibers and said notch filter.

37. The system of claim 36, further comprising a focusing lens between said notch filter and said round-to-parabolic linear array fiber bundle.

38. The system of claim 23, further comprising means for delivering illumination light to said filter adapter and said filter adapter further comprises a collimating lens between said means for delivering and said band-pass filter, a focusing lens between said band-pass filter and said illumination fiber, a collimating lens between said plurality of collection fibers and said notch filter, and a focusing lens between said notch filter and said round-to-parabolic linear array fiber bundle.

39. The system of claim 23, further comprising a quartz window at the distal end of said fiber bundle.

40. The system of claim 23, wherein said illumination light is chosen to induce Raman scattering.

41. The system of claim 37, wherein said illumination light is monochromatic.

42. The system of claim 37, wherein said light source is a laser.

43. The system of claim 39, wherein said laser is a diode laser.

44. The system of claim 40, wherein said illumination light is about 785 nm.

45. The system of claim 23, wherein said plurality of collection fibers have a core diameter of about 100 μm.

46. The system of claim 23, wherein the number and core diameter of said plurality of collection fibers are selected to fill the vertical height of a detector of said spectrometer.

47. The system of claim 43, wherein said detector is a CCD.

48. A method of measuring Raman spectra *in vivo*, comprising the following:

providing illumination light,

band-pass filtering said illumination light to reduce background Raman and fluorescence signals,

short-pass filtering said illumination light to reduce background Raman and fluorescence signals,

illuminating a subject with said illumination light to induce measurable Raman scattered light,

collecting a sample of light comprising said Raman scattered light,

long-pass filtering said sample to reduce reflected light,

notch filtering said sample to reduce reflected light,

providing said sample with a substantially inverse shape that is complementary to a distortion to said sample caused by passing said sample through a light-dispersive element,

passing said sample through a plane grating to provide substantially straight spectral lines, and

performing Raman spectroscopic analysis on said substantially straight lines.

49. The method of claim 48, wherein said short-pass filtering step comprises attenuating wavelengths above 825 nm.

50. The method of claim 48, wherein said long-pass filtering step comprises attenuating wavelengths below about 825 nm.

51. The method of claim 50, wherein said short-pass filtering step comprises attenuating wavelengths above 825 nm.

52. The method of claim 48, wherein said band-pass filtering step comprises transmitting in a range around 785 nm.

53. The method of claim 52, wherein said range is plus-or-minus 2.5 nm.

54. The method of claim 48, wherein said notch filtering step comprises attenuating at an OD greater than 6.0 at 785 nm.

55. The method of claim 48, further comprising providing a quartz window between said subject and said illumination light.

56. The method of claim 48, further comprising selecting said illumination light to induce Raman scattering.

57. The method of claim 56, wherein said illumination light is monochromatic.

58. The method of claim 56, further comprising providing said illumination light from a laser.

59. The method of claim 58, wherein said laser is a diode laser.

60. The method of claim 59, wherein said illumination light is about 785 nm.

61. The method of claim 48, further comprising collimating said illumination light before said band-pass filtering step.

62. The method of claim 61, further comprising focusing said illumination light after said band-pass filtering step.

63. The method of claim 48, further comprising collimating said sample before said notch filtering step.

64. The method of claim 63, further comprising focusing said sample after said notch filtering step.

65. The method of claim 48, further comprising collimating said illumination light before said band-pass filtering step, focusing said illumination light after said band-pass filtering step, collimating said sample before said notch filtering step, and focusing said sample after said notch filtering step.